

REMARKS

Entry of this paper and consideration of the subject application in view thereof are respectfully requested.

I. Status Of Claims

Claims 64-77 were pending in this application and these claims stood rejected. Claims 64-77 have been canceled and new claims 78-80 have been presented to clarify the invention. Support for the limitation "having a purity of $\geq 99\%$ " can be found in the specification, for example, at page 15, lines 25-26 and at page 20, lines 15-16. No new matter is added.

II. Response to the Office Action of October 13, 2009

A. Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 64-75 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, the Examiner contends that "[t]he term 'substantially pure' in claim 64 and 70 is a relative term which renders the claim indefinite. The term "substantially pure" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. What does this term mean? Are there varying degrees of pure? Where does the specification define such term?"

Applicant respectfully submits that this rejection is moot in view of the revised claims presented herein. The reference to claim 47 is believed to be in error as this claim has been canceled. Accordingly, Applicant respectfully requests reconsideration and removal of the rejection under 35 U.S.C. § 112, second paragraph.

B. Claim Rejections Under 35 U.S.C. § 103

Claims 64-69 stood rejected under 35 U.S.C. § 103(a) as being unpatentable over Bhupathy et al., U.S. Patent 6,320,052 ("Bhupathy"). Claims 70-75 stood separately rejected

under 35 U.S.C. § 103(a) as being unpatentable over Bhupathy. The Examiner further rejected claims 76-77 under 35 U.S.C. § 103(a) as being unpatentable over the Bhupathy reference.

Without acquiescing to the validity of the Examiner's assertions and solely to expedite prosecution of the application Applicant has elected to present the invention in different terms. Applicant respectfully submits that this rejection is moot in view of the revised claims presented herein. To the extent the Examiner wishes to maintain the rejection based on the Bhupathy patent, however, Applicant respectfully traverses the rejection.

The *Graham v. John Deere Co. of Kansas City*, 86 S. Ct. 684 (1966) factors control an obviousness inquiry. Those factors are: 1) "the scope and content of the prior art"; 2) the "differences between the prior art and the claims"; 3) "the level of ordinary skill in the pertinent art"; and 4) objective evidence of nonobviousness. *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, at 1734 (2007) (quoting *Graham*, 383 U.S. at 17-18). Secondary considerations such as unexpected results may confer patentability.

Bhupathy is cited as teaching crystalline form of montelukast dicyclohexylamine salt obtained by crystallization from toluene/heptane. Bhupathy has also been cited as disclosing a process of reacting the montelukast dicyclohexylamine salt (X) with aqueous acetic acid in an organic solvent such as toluene, an ester such as ethyl acetate or a mixture thereof, and this suspension at room temperature is added an aqueous solution of an organic acid, preferably acetic acid (at column 9, lines 20-28).

Notwithstanding, Bhupathy does not teach or suggest the claimed process for preparing montelukast acid in solid form. Assuming, *arguendo*, that Bhupathy teaches montelukast acid preparation, there is no evidence that it is in solid form and there is no evidence as to the purity of any montelukast acid taught therein. Bhupathy teaches montelukast sodium preparation in crystalline form. Bhupathy uses a solution of montelukast acid in toluene or ethyl acetate for montelukast sodium preparation in crystalline form. Even for montelukast sodium preparation in crystalline form taught by Bhupathy, there is no evidence as to the purity of montelukast acid material used for the solution. Applicant respectfully submits that not only that the Bhupathy patent lacks necessary teachings or suggestions to predictably arrive at the claimed process for the preparation of montelukast acid in solid form but also that the process for crystalline montelukast sodium preparation taught by Bhupathy is arduous, and the process cannot be

used for the preparation of montelukast acid in solid form as claimed. Furthermore, the final product (montelukast sodium) prepared using the process disclosed in Bhupathy is relatively impure.

With regard to claim 79, Bhupathy does not teach or suggest the montelukast acid in solid form is a light yellow solid and has a melting temperature range of 148-150 °C (see the entire disclosure of Bhupathy, particularly at col. 7, line 60 through col. 9, line 5, and at col. 14, lines 15-16).

With regard to claim 80, Bhupathy does not teach or suggest process for preparation of montelukast sodium in amorphous form. The claimed process results in montelukast sodium having very low residual solvents as well as very low moisture content even < 0.2%. Bhupathy discloses a process for the preparation of amorphous montelukast sodium requiring freeze-drying of aqueous solution of montelukast sodium. One skilled in the art would know that the thus prepared montelukast sodium will have a high water content. The prior art process is not suitable for the preparation of pure montelukast sodium as sulphur of montelukast sodium will oxidize in presence of water to form montelukast sodium sulphoxide impurity which is very difficult to remove from the montelukast end product.

The determination of obviousness is made with respect to the subject matter as a whole, not separate pieces of the claim. See *KSR* at 1734. While the *KSR* Court held that rigid and mandatory application of the “teaching-suggestion-motivation,” or TSM, test is incompatible with its precedents, the Court did not discard the TSM test completely; it noted that its precedents show that an invention “composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” The Court held that the TSM test must be applied flexibly, and take into account a number of factors “in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed.” *Id.* at 1740-41. Despite this flexibility, however, the Court stated that “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements in the way the claimed new invention does.” *Id.* “To facilitate review, this analysis should be made explicit.” *Id.*

The obviousness rationale set out in *KSR* was premised on combining elements known in the prior art. *Id.* at 1738-39. A similar analysis applies, however, to a rejection premised on the

obviousness of modifying a known process to change properties of the product by the process. There is difference between new chemical process whose performance and effectiveness in combination cannot be confidently predicted but must be made and evaluated, and new mechanical combinations of known elements each of which predictably performs its known function in the combination. The KSR Court noted that obviousness cannot be proven merely by showing that the elements of a claimed process were known in the prior art; it must be shown that those of ordinary skill in the art would have had some “apparent reason to combine the known elements in the fashion claimed.” *Id.* at 1741.

Thus, the Examiner must do more under *KSR* than merely showing that every element is present in the cited art, that this is typical organic laboratory practice and that the modifications are no more than an effort to optimize results. The Examiner must offer more than a limited explanation of how the Applicant’s process would have been obvious to one of ordinary skill in the art.

Applicant respectfully submits that the record, as discussed above, makes it clear that the current rejection should be withdrawn. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

III. Conclusion

Applicant believes this response to be a full and complete response to the Office Action. Accordingly, favorable reconsideration in view of this response and allowance of all of the pending claims are earnestly solicited.

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

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Respectfully submitted,



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